Eval Inc 412

COMMUNITY BASED NATURAL RESOURCE MANAGEMENT

A Review of the CBNRM Program Initiative of IDRC

Review Team

Jacques Chevalier
Hans Schreier

24 June 1999

External Review of IDRC's Community based Natural Resource Management Program (CBNRM) in Asia

Jacques Chevalier
Department of Sociology and Anthropology
Carleton, University, Ottawa, K1S 5B6
and

Hans Schreier
Institute for Resources and Environment
University of British Columbia, Vancouver, B.C. V6T 1Z3

For

Fred Carden, Evaluation Unit
International Development Research Centre (IDRC)
250 Albert Street, Ottawa, Ont. K1G 3H9

June 30, 1999

Review of IDRC's CBNRM Program

June 24, 1999

Jacques Chevalier, Department of Sociology, Carleton University, Ottawa,

Hans Schreier, Institute for Resources and Environment, University of British Columbia, Vancouver, B.C.

Table of Content

1. CBNRM objectives and context

The Community based Natural Resource Management (CBNRM) program at IDRC is a relatively small program and was officially initiated in 1998. It seeks to establish a series of linked, long-term site-based studies designed to identify, generate, test, disseminate and institutionalize alternative NRM practices as applied to fragile and degraded environments in Asia. The methods used in this program emphasize local capacity-building, community-level governance, participatory R&D involvement, interdisciplinarity, indigenous knowledge and sensitivity to gender ethnicity, age and class.

CBNRM focuses on project development in Asia and must take into consideration differences between South Asia, Eastern and South-Eastern Asia. Some general denominators nonetheless include high rural population densities; severe resource scarcity problems; a significant concentration of the world's poor, most of whom are women; the underdevelopment of R&D activities; a lack of training in the social sciences and interdisciplinarity (capable partners are few and in high demand); high levels of cultural heterogeneity; rigid divisions or inequalities between genders, age groups, ethnic groups and classes; institutional centralization mixed with increasingly vocal organizations leading to political unrest; the expansion of markets, large-scale economic investments; primacy granted to economic goals; greater openness to institutional and technological innovation due to globalization (e.g., democratization, decentralization, information technology, etc.).

While the CBNRM program is young, the approach was used for some time and evolved in an evolutionary manner over the past 5 years. Initially most projects in Asia used the traditional top down science approach. This new initiative, however, is focused on community participation, where local people and community groups are actively involved in the research. The philosophy behind this approach is that farmers, fishers and other resource users work with many constraints that are rarely considered in traditional research trials. Most agricultural research is conducted under optimum input and environmental conditions or under conditions where high input is not a constraint. Concerns were expressed that people living in marginal environments, where the resource degradation risks are high, were not benefiting from such research since many innovations are either not applicable or do not sufficiently address constraints. The traditional research helps the best farmers in the most productive agricultural environments and does little to assist the poor farmers that work in marginal environments, under higher risk and greater constraints. Overcoming such constraints is much more challenging and complex. Also, the thrust is to involve stakeholders and address the entire natural resource system rather than part of the system as is common in agricultural research.

The CBNRM approach should be viewed more as a concept than as a clearly delineated program. Tools and methods are evolving and being developed as projects progress. The Hue workshop (Hue Univ. of Agriculture, 1997) marks the key date when the ideas of CBNRM were discussed in a consultative manner with representatives from other funding organizations, NGOs, and researchers actively involved in IDRC projects in Asia. Only two years have passed since this initiative was launched and it is therefore difficult to fully evaluate the program at this early stage. After all introducing a program with an emphasis on interdisciplinary research, local intervention and community participation requires more than a shift in philosophy. It requires a combination of skills, personalities, visions, teamwork, and

experiences which few of the participating researchers and community members initially had. It also requires a political system that is open to such an approach. Working in an interdisciplinary manner is likely one of the more challenging topics that all educational institutions are facing today. Traditional science is based on compartmentalization, specialization and simplification and only since environmental and resource degradation became a major topic of concern have the educational institutions responded to the challenges of holistic, integrated and interdisciplinary research and training using the ecosystem and watershed approaches.

This new CBNRM program initiative is therefore doubly challenging. First, the need to address the entire resource system is complex and challenging. Second, to find researchers and community members that understand and have experience in interdisciplinary research and think holistically is difficult because most have been trained and educated in a disciplinary manner. The challenge is to retool and re-educate researchers and develop methods and approaches to get communities to participate in a joint effort to improve resource management for both short term benefits and long term sustainability.

2. Program issues

There are a number of program issues that were identified during the review and that we wish to take into consideration, if only briefly.

2.1 Staff and time constraints

CBNRM documents mention problems of inadequate staffing levels and team scattering as well. PI members are committed to other programs, they are geographically dispersed, and they have limited access to travel budgets. Also, the administrative burden imposes severe limits on the amount of time that a program leader can invest in project development and appropriation. As time-consuming as they may be, complex projects must satisfy so many requirements that their likelihood of meeting Center approval is reduced, hence project development may fail to materialize. All of these team-organization and time-management problems are reported to create significant gaps in a PI's pipeline and planned appropriation activities.

2.2 Program identity and synergies

CBNRM has maintained a distinctive focus (community-based natural resource management in Asia's context of marked community heterogeneity and hierarchy) and a close fit between program and project objectives. At the same time the program appears to have developed successful synergies with other PIs (MINGA, SUB, PLAW, VEEM, PBR and RBF) and shown responsiveness to priorities and opportunities in E/SE Asia (but less so in SA due to human resource constraints). Recipient input into prospectus design was secured at the Hue meeting held in May 1997.

It is somewhat unrealistic to seek co-funding when embarking on a new strategy and direction such as CBNRM, because most donors follow the more traditional disciplinary path

and it takes leadership to move into new directions of development research. While co-funding has been successful only in a few cases, external synergies aimed at securing parallel fund have been quite good. Doubts have been expressed as to whether there is much to gain from sharing experiences and innovations with co-funders in South-East Asia, and management notes that CBNRM has not yet built an effective set of links between projects.

2.3 Regular monitoring and evaluation (M&E)

M&E is very time-consuming and given the staffing, attention can be given only to those projects that require assistance, that apply for continuing support or that are delinquent or deficient in their reporting activities. In any case there is general agreement that outputs, policy uptake and social incidence are likely to take several years and cannot be evaluated in the short term. Management nonetheless notes weaknesses in CBNRM's overall evaluation plan, which lacks in coherence and provides insufficient information concerning resources requirements (human and financial). We add that the evaluation plan proposed for this program could be simplified, as it tends to be repetitive and overly ambitious. Incorporating measurable indicators into each project to facilitate progress assessment, as already planned may do this. Projects should have built-in M&E procedures so as to be able to evaluate both CBNRM and participatory research methods in their own work.

3. CBNRM approach, risks and opportunities

This new program initiative is timely and shows considerable promise. There are however, a number of issues need to be addressed, to which we now turn.

3.1 Adjustments to a new approach and new tools

Implementing CBNRM in Asia is not an easy task. The community-based natural resource management approach and the tools (participatory methods, ecological variability and land tenure analysis, integrated systems approach, alternative institutional management) are new to many parts of Asia and a lot of effort must be invested from the outset in developing the necessary capacities at the academic level and trust at the community level. Otherwise confusion and misapplications of CBNRM concepts are likely to occur. The complexity of the approach generates risks of management failure as well. Given these potential problems, weaknesses and limits of the approach (constraints, enabling conditions, conflicts between short-term and long-terms objectives, etc.) must be further explored if the PI is to better target its own project development activities.

CBNRM involves not only interdisciplinarity efforts on the part of the research team but also multi-stakeholder participation. Conducting effective interdisciplinary research has yet to reach the mainstream of the scientific community and involving stakeholders into the research is also a recent initiative. Since both require the use of new methods and special skills it is evident that this will take considerable adjustment before teams and coordination between the parties involved will be effective. This is particularly important since long term funding is likely needed in order to develop capacity and to tackle these more complex approaches and commitments at the community level.

3.2 General perception of the program

In our view CBNRM is a good concept, but it is not a panacea to all natural resource management problems. Some of the issues have to be addressed at larger scales and involve different approaches and initiatives. However, using CBNRM concepts in Asia is timely because it addresses interdisciplinary, it looks at land use systems, and it is more responsive to the direct needs of the target populations in threatened mountain and coastal environments.

There is nonetheless a general misconception about Community Based Natural Resource Management. It is viewed by the physical science community as weak, too micro, and too focused on immediate problem solving, without much emphasis on long-term issues. Some of the reasons for this are: weak information exchange, few proven examples of effective research projects, difficulties to compare results based on the CBNRM vs. non-CBNRM approach, and the challenges of publishing and communicating in a more interdisciplinary environment. Also the term "Community Based" is somewhat inappropriate as it implies solving local problems that are not common and applicable to the larger regional and global economy. As communities get larger and become more urbanized there is also the problem of defining what a community is. In a more urbanized community there is a shift from direct productive resource use to one where people primarily provide services. In such communities there is only an indirect link to natural resource management and the process of involving stakeholders in the management becomes more complex. Perhaps the name of the program should be "participatory research (or stakeholder based research) in natural resource management" to better reflect the activities and to get away from the general term "community" which is difficult to define at the best of times.

Be it as it may, what matters in the end is that research initiatives allow the participants to move closer towards a better integration between the social and bio-physical sciences in their research activities and involve the users and stakeholders directly in the research process.

3.3 Relevance to issues faced in the Asian region

Is the CBNRM approach appropriate for Asia and is it addressing the key issues facing the region? The answer to this question is clearly yes. We suggest that the IDRC initiative introduced in 1998 was timely and at the forefront of changing the traditional development initiatives in the region that have not been successful in alleviating the problems of the rural poor. Countries such as China, Vietnam, Cambodia, Nepal, and to a lesser degree Laos and Bhutan are emerging from a system of top-down state control to one where local communities have a much larger voice in the decision making for the use of their local resources. This is nowhere more evident than in China where democratization is happening at the local level. Similarly, the democratic movement in Nepal demanded that forest management be transferred from the national department and placed under local control as community forestry. When such political transitions occur there are opportunities to introduce new approaches that are more comprehensive, more equitable, and address long term sustainability of the resource system.

However, there is a caution in this because not all issues in the region can effectively be addressed using the CBNRM approach. There should be, and there appears to be flexibility

within the program to balance the research initiatives. Not all research efforts should be spent on community participatory research. A significant portion of the research should also focus on basic issues that are of more long-term concern and that go well beyond immediate community concerns. Also, there appears to be a perception by a number of people and organizations that everything should be community based and participatory in order to be successful. This is obviously an exaggeration and a more balanced approach is needed if we hope to make progress in improving the resource issues in the region. So the key to the success of a CBNRM project is how to find a balance between participatory and basic research, between diagnostic research and intervention research, and between short term effects and long term sustainability issues.

Asia is the region where progress has been clearly visible. However, it is also the region where population pressure is highest and as a result intensification and resource conflicts are increasing rapidly. Resolving some of these upcoming conflicts requires that effective communication exist between the research team and the community participants. Interaction between researchers, community members and local institutions thus becomes critical and CBNRM is well placed to address such conflicts. Caution must be taken, however, to avoid putting too much emphasis on the use of PRA and RRA; survey and interview fatigue can create a bit of a backlash which is counter-productive to the CBNRM mission. Finding the balance between diagnostic participatory research intervention and basic research is the main challenge facing the projects in CBNRM.

Finally, the PI notion that research should be carried out in one or several communities is not without problems. The community is an ill-defined geographic unit that is based on political rather than natural boundaries. Hence, inter-community conflicts are not specifically emphasized. In some of the projects the watershed serves as a much better unit than the community within which the research is to be conducted. In the coastal zone a lagoon system also serves better as an integration unit within which the CBNRM approach can be practiced effectively. This will facilitate the scaling up of successful resource interventions from one community to the other. For example in the Tam Giang Lagoon project the focus was placed on three villages. However, the resource management issues concern the entire lagoon and interventions within these three villages will have little impact on the overall management of the lagoon if the other communities are not involved or not part of the innovations. In all projects there should be some emphasis on how communities interact and affect the larger environments, are they watersheds, lagoons or eco-regions. Every CBNRM project should address mechanisms whereby communities are (to be) linked to the larger eco-system or region.

3.4 Program risks and opportunities

There are many positive and negative aspects to the CBNRM initiative and the key to the program is finding the right combination of researchers, resource users, environmental system and political climates in which this can be accomplished successfully.

Some of the key risks and problems in the program are:

- Moving from field based agricultural research and interventions to a more systems based research where participation of a wide range of people and institutions increases the risk

that the projects become too complex (researchers try to address all issues that interact and impact on a specific resource use).

- There is also the danger that too much focus will be placed on individual communities and not enough on extrapolation and interaction between communities.

- Getting community involvement presupposes a long-term commitment, yet there is often a risk of raising short-term expectations. Using the CBNRM approach can lead to situations where the researchers might focus mostly on the immediate issues and concerns expressed by the community, at the expense of long term concerns of sustainability (requiring long-term financial support).

- To involve stakeholders in the research is also time consuming and less efficient in the short term (it takes time for the research team and the participating community members to develop trust and workable experiments that are acceptable to both groups).

- The prevailing politics needs to be open to giving local groups more control over the resources and their use. If national policies control a specific resource use without concerns of local needs, then it might be difficult to get communities to participate in the interventions.

- The diagnostic techniques used in CBNRM to collect data are often difficult to verify and are of questionable reliability. Triangulation techniques need to be stressed so that results can be verified.

- CBNRM requires that a range of tools be developed to arrive at defensible results but also that these tools be widely accepted by researchers and community members alike. This presents a bit of a risk particularly for young researchers who are trying to establish a career and publication record.

- Finally, few researchers and research teams have experience in interdisciplinary research and working in a team effort is much more challenging and requires mutual respect, diplomacy, and tolerance -- requirements that do not usually apply to disciplinary research. This means that the success of a project is much more dependent on the inter-personal skills of the team members. Success is heavily dependent on the skills, experience and unique combination of personal traits of the researcher.

While the risks are high, it should be recognized that traditional approaches have not been very successful in reaching and improving the conditions of marginal communities in stressed environments. Hence the project initiative is breaking new ground, using an innovative concept that has potentially large benefits not only to the target community but also in building unique capacities and understanding among the researchers and the participating community members.

What makes CBNRM attractive is:

- The research becomes more relevant to a segment of society, which was previously left without much assistance.

- The commitment has to be more long term, which provides a better framework for learning by doing, for establishing trust, and for making a more permanent impact on how resources are managed.

- The research results have a much wider and more immediate impact because usually groups of resource users are involved in the project.

- The program makes a concerted effort to address issues in an interdisciplinary manner, which leads to more holistic evaluations and interventions of resource systems and hopefully greater sustainability.

- The CBNRM concept is flexible and allows for adaptations that can be used in a wide range of political, social and environmental conditions.

3.5 Engagement of researchers and stakeholders

The keys to the success of the program are the researchers and their ability to engage the stakeholders such that they become active partners and participants in the process of doing research for development. This is probably the most difficult part of the program and the IDRC program field staff have done well in selecting young and dedicated individuals to take the initiative in China, Bhutan, Laos, and Vietnam to make the first steps to build interdisciplinary teams and to engage community groups in the research project. There are a range of projects that are moving into a phase of effective participatory research in a truly interdisciplinary manner, but most are still in the very early stages. This is understandable given the disciplinary background of most team members. It takes time to build teams, to identify key issues and to engage participants. It appears that the dedication on the side of the researchers is there and in several cases the right combination of team members are coming together.

However, almost in all teams one or two of the key areas of expertise are lacking (e.g., soil science and social science in Bhutan, hydrology and agronomy in China, hydrology and policy in Vietnam, agronomy and livestock in Nepal). Finding the right member for each team is likely to be the most difficult task since funding for these projects is limited and engaging national agencies in the project is often difficult. Experts with experience in these new areas of participatory research are in high demand and time is needed to build such capacities in the projects in each country.

Engaging stakeholders also requires skills that are not readily available within the research team and so far universities have not provided sufficient leadership in exposing young researchers to such topics as negotiations, conflict resolution, and participatory evaluations techniques. Some of these skills are essential and IDRC has to consider whether it wants to be involved in education programs to help bridge this gap. The tool kit is a start but maybe some distance learning program using multi-media techniques might also be an option.

Based on the projects we reviewed it is evident that many of the research teams are highly motivated and do innovative research. What is also positive is that the recent introduction of measurable indicators is becoming part of every research project agenda. This will help team leaders to focus and to become more accountable. Most of the researchers involved in the program have benefited greatly from the interdisciplinary exposure and the cross-

disciplinary interactions, and this will build a new research capacity that will have long term benefits.

3.6 Potential impact

The PI has not been in place long enough to operationalize its objectives through the research activities. However, much progress has been made and most projects are evolving and adapting the CBNRM principles in one way or another. Documentation of the approaches used has been somewhat slow but the relevant packages have now been made available to the researchers via the IDRC tool kit.

The PI has the capacity to make significant inroads into interdisciplinary team building and to involve stakeholders in addressing the resource management issues in a more holistic manner. Lots has been written about these two topics but until recently relatively little progress has been made at the university level as well as in development circles. So, IDRC is at the forefront in this area and is taking on a challenge that has so far eluded the traditional training and education programs. If the right teams can be built and if the political climate is ready for giving more control to the local community then this might be a good recipe for success.

There is a guarded excitement about CBNRM and while it will take some time to show results we are positive about the concept and the direction the program is going. The key to the program is to maintain the proper balance between science and social sciences and between short term and long term issues and impacts. Exposing disciplinary scientist to integrated interdisciplinary concepts, as advocated by CBNRM will build a new research capacity that will have considerable long term promise.

In our view there is the potential to make an impact at the political level as well. In a number of countries (e.g. Bhutan, Lao, Vietnam, and in some cases in China) the idea of researchers being directly involved with local community groups seems to have been received in a receptive way. In addition, a case can be made that with this approach we can reach community segments that have traditionally been left out (e.g. the poor, women, ethnic minorities).

4. Project review

4.1 The Washington conference and publication

These are currently in print (Conflict and Collaboration in Natural Resource Management, D. Buckles ed.) and have brought together an impressive array of CBNRM expertise from different parts of the world (250 participants from over 60 countries) and generated a useful tool: a well-designed book integrating IDRC-funded case-studies and concept papers commissioned by the Center. IDRC and its partners were responsible for about 25% of the case studies and 20% of the plenary presentations planned for the event. Though labor-intensive (100 persons days of IDRC staff time spanning over 8 months), these results have been achieved at a modest cost to the Center and with effective cross-PI cooperation ($36,000). All indications are that the Conference and the book have enhanced and will contribute to raising the profile of IDRC partners and promoting the international visibility and

credibility of CBNRM practices and philosophy. Other objectives pursued -- raising IDRC's profile among other donors and influencing WB thinking and WBI's training agenda -- seem not to have been attained. Senior Bank staff were conspicuously absent at the event, and project documents mention a tendency on the part of WBI to give little recognition to co-funding organizers (IDRC and Ford Foundation) and to co-opt CBNRM philosophy into serving the cause of decentralization à la World Bank.

The Washington event raises two sets of strategic questions. First, what are the pros and cons of activities involving co-funding institutions whose agendas and "partnering politics" may be too far removed from IDRC philosophy? Should the Center envisage future projects involving long-term partnership with the World Bank in the hope of having some impact on the WBI's agenda, with payoffs to be assessed over time? Alternatively, could projected partnerships with CIDA and the SDC be more compatible with CBNRM objectives? Second, how much short-term and long-term PI labor should be invested in organizing activities and producing outputs such as these?

4.2 The CBNRM Social Science Resource Kit

This is part of the PI's effort to provide the necessary tools to assist program-funded partners in Asia. The Kit consists of selected readings that cover conceptual and methodological issues, research tools and illustrative case-studies directly relevant to CBNRM research and development, whether be they in the area of Gender (Vol. 1), CBNRM (Vol. 2), Participatory Research (Vol. 3), Indigenous Knowledge (Vol. 4), Institutional Analysis (Vol. 5), Common Property (Vol. 6, forthcoming) or Conflict Management and Stakeholder Analysis (forthcoming). This material has been prepared at the request of Center research recipients "constrained by a lack of access to well-stocked libraries, relevant databases and internet sites, researchers involved in applying "a new concept requiring analytical tools and research methods that are quite different for those that they had received through formal or other training." To date research undertaken in Asia has not been action-oriented and has generally failed to incorporate the social sciences, studies of mixed private/common property systems, institutional analysis, factors of community heterogeneity and dynamics (internal and external), and the gender dimension. The Kit is designed to counter these weaknesses in the dissemination of concepts and methods essential to IDRC's approach to CBNRM.

The five volumes already produced are of excellent quality and should succeed in doing what they are intended to do. They have been produced at a relatively modest cost to the Center ($60,600) and should provide a well-designed, user-friendly series of tools to researchers undertaking CBNRM research in Asia. Although emphasizing CBNRM in Asia, other PIs should be able to make use of this material as well. This is a good example of a program generating research support activities (the Kit eventually followed by a training program developed by Canadian and Asian partners) that take up few resources while making a significant contribution to attaining project and program goals alike.

The "Kit" is nonetheless symptomatic of a basic tension that the CBNRM program is faced with -- the tension between conceptual leadership and social/cultural responsiveness. On the one hand, the Kit promotes concepts of research participation and "local" solutions to problems of poverty and environmental degradation, concepts that may serve to create ideal conditions towards the sustainable and equitable management of natural resources. On the

other hand, CBNRM is neither a local solution nor a direct expression of Asian researchers' participatory input into the development of IDRC's cutting-edge R&D concepts. The tools and methods are so foreign to Asian research practices as to require the preparation of a "social science tool kit" presented in a "teaching tone" that stimulates "research questions and further inquiry" but nonetheless offers specific instructions as to how researchers and institutions can apply and make effective use of these tools.

The latter observations raise two critical questions. First, should there not be a conscious effort on the part of the PI to blend in Asian practices and concepts into its methods and concepts, in keeping with the local/participatory spirit of CBNRM? Should it not seek innovative adaptations and transformations of CBNRM, as opposed to measuring its success or limits when applied to Asian communities? Second, what practical implications follow from a program that chooses what are probably the most difficult conditions to implement its own agenda? Should it not adjust its expectations regarding project eligibility, scope and design accordingly, towards a realistic assessment of objectives that can be targeted and effectively pursued using a CBNRM approach?

4.3 PARDYP

This project is coordinated by ICIMOD and the University of British Columbia and co-funded by the SDC. It tackles economic and ecological problems affecting the Hindu Kush-Himalayan people and their mountainous environment. The main objective is to promote the community management and sustainable use of fragile mountain ecosystems, using interdisciplinary and participatory methods to achieve a better understanding of environmental and socio-economic processes and the adoption of solutions advanced by shareholders in the region. Also PARDYP is to form part of a larger network of Asian projects that have in common the pursuit of CBNRM objectives.

The project launched in 1996 has not been working under ideal conditions. For one thing it brought entirely news concepts and skills (CBNRM, participatory methods) to most researchers and institutions involved (from four southern and two northern countries). ICIMOD's performance as a research institution (Swiss supported) was at that time relatively poor and in need of research capacity building. Previous realizations were uneven. In one of its two projects, the Rehabilitation of Degraded Lands in Mountain Ecosystems, participatory methods had not been used and institutional factors required to make alternative NRM technologies sustainable had not been explored. The project worked with local communities in efforts to rehabilitate degraded areas, using small sites (30-50 hectares) in four countries: Nepal, Pakistan, India and China. By contrast, the Mountain Resources Management Project applied a systems approach to analyzing and monitoring environmental processes in a 11,000 ha watershed. The project led by Mr. Shah of ICIMOD and Hans Schreier of UBC had shown considerable success and developed strategies and skills that were deemed transferable to other partners in the four countries listed above. Outputs from the Mountain Resources Management Project included promising reports but also two excellent CD-ROMs now available through internet: Complex problems - complex solutions: preservation, degradation and rehabilitation in a Nepalese watershed (PARDYP and UBC, 1997), and Gender and Resources in the Middle Mountains of Nepal (Sandra Brown, UBC).

Other obstacles were identified, apart from the uneven of previous experiences. Difficulties facing PARDYP included the large number of institutions involved, some of which are less

reliable than others -- e.g., the four Government Departments in Nepal. Also, most formal institutions were known to work in a top-down fashion, action-oriented research was not and is still not the rule, and interdisciplinarity has yet to be mainstreamed. This is to say that close monitoring and supervision were going to be needed, and dependence upon outside expertise and support (such as provided by UBC) was inevitable.

Given these conditions, PARDYP was and still is by all standards an ambitious project. It aims at nothing less than a comprehensive application of action-oriented, participatory, multi-institutional and interdisciplinary CBNRM research methods to five watershed sites in what is the largest, highest and most populated mountain system in the world. It is all the more ambitious as prevailing institutional, political and academic circumstances do not point to conditions generally favorable to CBNRM research.

Uneven results continue to reflect the gap between the ambitions of CBNRM and the reality and circumstances of R&D in Asia. The last IDRC trip report (by Ronnie Vernooy) notes unevenness in the quality of CBNRM work and fieldwork research undertaken by various national teams. Workshop presentations given in Baoshan (China) by the Nepal and China teams were good, but those given by the Indian and the Pakistani teams were average and very poor, respectively. On the whole, workshop discussions revealed a need to move much closer to a people-oriented, demand-driven, participatory research agenda.

A SWOT exercise (strengths, weaknesses, opportunities and targets) undertaken with the Nepal PARDYP team (February 25, 1999) confirmed this general assessment. Briefly, the exercise revealed problems of leadership (distracted by administrative and institutional battles); weaknesses in team training (e.g., in socioeconomics, participatory methods, policy analysis); limited involvement on the part of non-core ICIMOD project staff; lack of interdisciplinarity (not the same as multidisciplinarity); an overemphasis on ecological issues (watersheds) as opposed to social issues and related considerations of gender, class, ethnicity and caste; excessive project breadth; inadequate grasp of what research is for and for whom and with whom it should be done; no dynamic linkages between research, extension and development; limited grassroots participation and commitment; and neglect of local innovation and diffusion processes.

Many of the problems listed above are echoed in PARDYP's Annual Summary Report for 1998 (dated April 1999). The project should put greater emphasis on appropriate and proven technologies (no need to reinvent the wheel); the farmer as the client -- hence community-based participatory development and close work with community groups doing on-farm and farmer-led research; socioeconomic information to be collected, analyzed and used for development purposes; further training and expertise in the social sciences, agronomy and livestock/pasture management (especially fodder production to reduce women's workload). Also more project findings should be published, and there should be greater integration of different project activities.

On this last point, PARDYP shows a very impressive record of research and experimental development activities carried out at all levels and in all the countries targeted by the project. Despite its weakness, this is a generally successful project that produces a wide range of tangible results that could not be fairly captured in a few pages let alone a few paragraphs. But this strength is not without its downside. The project tends to function as a network of researchers and activities generally committed to CBNRM principles but there is a need to better document what the essential ingredients are for successful integrated development.

The researchers and their activities complement one another, but combination is not the same as integration, and more work is needed in this area.

PARDYP is an important and promising contribution to IDRC's CBNRM program initiative. It is nonetheless fraught with difficulties that point to issues of program scope and feasibility in relation to project design -- issues discussed at some length elsewhere (see Minga report). On the whole, success may hinge on the project's ability to proceed through stages of CBNRM development, starting with intermediary goals (such as capacity-building, multidisciplinary planning, community input into diagnosis and planning) to be pursued and attained before other critical steps (full-fledge data base collection and analyses) are considered. Caution must be taken not to conflate program breadth (built into CBNRM's prospectus agenda) with immediate project activities designed to function incrementally, with a primary concern for feasibility and effectiveness.

4.4 Community-Based Coastal Resource Management, Philippines

This project espouses most CBNRM objectives through its own CB-CRM agenda (community-based coastal resource management). On the whole, however, the project tends to focus on issues of coastal community decision-making and social organization in the sustainable management of common pool natural resources. This proposal for an integrated, interdisciplinary and participatory management of coastal water resources was originally developed in collaboration with the Coastal Resources Research Network (CoRR) and with the direct involvement of three strong institutional partners: the College of Social Work and Community Development (CSWCD) known for its expertise in the area of community organization, and the Marine Science Institute (MSI) and the Haribon Foundation, both primarily concerned with issues of fishery management and livelihood development. Parallel funding from the Dutch Embassy and the Asian Development Bank's Fisheries Resource Management Program has been secured for this project.

Phase 2 of the project builds upon results and lessons of the previous phase. Phase 1 of the Bolinao experiment achieved significant gains despite major problems arising from a proposed cement plant complex actively supported at different levels of the Philippine government. Local resistance to this multinational project gave the project an opportunity to play a leading role in environmental education and collective movement activity. Results directly pertaining to the project's original CB-CRM agenda are also significant. They include the setting up of fishery-management people's organizations in five barangay villages, community-based POs organized into a municipal federation (despite local government resistance); the development of Marine Protected Areas (MPAs) proposals, one of which has received municipal Council approval; the development and approval of a Coastal Development Plan (CDP) for municipal Bolinao; and, last but not least, some success in achieving national and international visibility.

Phase 2 of this project builds upon previous successes by adding participatory M&E mechanisms; taking on a new island ecosystem; and extending CSWCD's community organization work to the adjacent municipality of Anda. An alternative ecosystem-based approach will also be tested through small-scale, self-sufficient resource management projects involving direct users and stakeholders from one or various communities sharing a common resource base. One advantage of this approach is that it reduces dependence

upon external support and related funding opportunities. It also allows researchers and actors to explore viable livelihood options and a variety of management and organizational mechanisms to sustain them. This issue of organizational adaptation to sustainable management activities constitutes a critical governance issue. It allows the project to move beyond models of formal cooperative and village organization, to include variable forms of management ranging from individual and household activities to co-management schemes involving POs and multiple institutions and levels of government.

Methodological difficulties encountered in the first phase continue to be the most important challenges of Phase 2. In Phase 1 the project was carved up into four distinct components, each with its own disciplinary profile: (a) community organizing (and education), (b) resource management, (c) livelihood, and (d) network advocacy. Indications are that activities carried out by both the institutions supporting the project and the site teams operating at the village level were clearly organized along these component lines, leaving limited space for integration and coordination across components, institutions and disciplines (such as the natural and the social). Institutions showed differences in methodological orientations as well. The CSWCD tends to place primary emphasis on participatory action research as a means to identify and develop viable livelihood options (in keeping with the community empowerment agenda of community development workers). By contrast, the MSI adopts mostly a consultative role in addressing natural resource management issues (e.g., exploring improved aquaculture production options from a natural scientific perspective).

Given these methodological and philosophical differences, Phase 2 of the Bolinao project refrains from imposing a fully integrative approach that might prove counterproductive in the short term. The project continues to pursue goals of interdisciplinarity but also makes allowance for separate sub-projects and budgets. Outside assistance from IDRC and other groups or institutions may be needed to facilitate the development of full-blown interdisciplinarity. External support may also be needed to pursue experiments in alternative livelihood options, which tends to be the weakest component of the Bolinao project.

4.5 Hue workshop

This workshop marked the start of the CBNRM program and brought together the IDRC program staff, a range of donor representatives, and key project team leaders. Each presenter was asked to discuss how the CBNRM approach was used in his of her project and what lessons were learned. The resulting proceedings give an excellent overview of what was useful in each project and how the projects evolved. From the document it is evident that most projects are making the transition from science base towards participatory research. However, most authors admit that the transition is not easy and requires skills and experience that need to be developed. It also points out that CBNRM needs to show results that directly benefit the community, and this should happen early in the project in order to sustain active participation. This is one of the key concerns because if issues are complex, short-term solutions are often not entirely satisfactory. It also takes time to build an understanding between community groups and the research teams particularly when the tools used in participatory research are new for both the researchers and the community members.

The Hue workshop document is a very good source of information, because experiences were shared about the state and early successes of CBNRM. Future projects can use this

document as a starting point but the participatory content is in many ways still in the early stages.

4.6 Wetland Production Systems, Bhutan

This is a project that has evolved from basic research in rice breeding at the Bajo research station towards a watershed project where the main research activities focus on diversifying agricultural production. The research team consists of a very dedicated group of young scientists with a range of disciplinary expertise mainly focused on plant breeding and crop production. Over the past few years they have expanded their research interests and obtained inputs from a number of external experts. The first steps in participatory research were taken last year when the production constraints and management issues were discussed with the farmers in three communities in the watershed and research experiments were initiated to improve fodder production, to rehabilitate degraded common property land by creating a farmer led community forest, to explore how to improve irrigation water access and distribution, to assist in integrated pest management. A number of new issues were identified as a result of the participatory surveys. These include irrigation water conflicts and labour shortages, both of which were not previously identified as major constraints by the more traditional research methods. Major adjustments are now being made to address these constraints. The team had no previous exposure to diagnostic community survey techniques and learned some of the techniques by attending workshops and from one field training session. However, several of the team members are very perceptive and eager and have used these newly introduced techniques with considerable success.

As noted in reviews and travel reports, the social science, economic evaluations, and soil fertility capacities are still weak within the team but they have recognized the importance of having such expertise as part of the research team and they are receiving assistance in these areas from collaborating external experts. It will take some time to develop these capabilities within the team but both the research team and the national government representatives are convinced that the community based and farmer led approach has great potential and is worth exploring.

This project shows great promise because the researchers have considerable disciplinary strength and can offer the farmers agronomic advice that can be of immediate benefit. They also are able to demonstrate to the farmers some of the experimental results at the research station, which is near the watershed. Once these additional skills and capacities are in place this project has the potential to become a bit of a model of interdisciplinary participatory research in the country. The Bajo group is the leading agricultural research group in Bhutan their influence in the rest of the country can be significant.

4.7 Lao Indigenous Fisheries Project

This is collaborative project between the Department of Livestock and Fisheries and the University of Sidney and is focused on local fisheries in Laos, which provides the majority of protein for the local communities. It looks at both fisheries science (biology, classification, migration and breeding) and the socio-economic and cultural aspects of community issues in the tributaries of the Mekong River. This project represents one of the very early examples of trying to match natural science and social science techniques to conduct

community based research. While the project covers a wide range of topics it has succeeded in building a good working relationship between the villagers and the fisheries officials. As in Bhutan, the project has evolved from a science to a study of community based fisheries management in backswamp areas. The project is remarkably well integrated considering the weak research capacity in Laos.

Maybe one of the important lessons from this project is that if the young researchers are eager and willing to work under difficult field conditions the pay-off and impact is large not only for the local community but also for the national government. The project demonstrated to the government that with village participation a better information base was created on the amount, kind and distribution of fish. Many scientific aspects were also covered, such as water quality monitoring, aqua-ecosystem characterization, spatial and temporal distribution of fish, the development of a fish catalogue, and fish breeding. Also, some economic evaluations were started but need to be expanded significantly in the future. It is difficult to assess the depth, rigor, and success of the breeding efforts but the knowledge base that is essential for fish management has significantly improved.

There are three areas that were identified where external assistance would be of benefit to the team. Little research was conducted on the role of gender in the fisheries. Also little attention was given to the impact of agriculture on fisheries and the interdependence between the two resource uses. Also, no mention was made about the impact of hydropower development on the fisheries activities.

4.8 Tam Giang Lagoon Project, Vietnam

This project focuses on sustainability issues in one of the largest lagoons in Vietnam, where the pressure on the biological resources is very high. This is a collaborative project between the University of Hue, the Provincial Department of Fisheries, and the Coastal Resources Research Network (CoRR) at Dalhousie. The fish catch is declining, as a result of over exploitation and the challenge is to develop an interdisciplinary, multi-institutional team capacity to address the community problems in this coastal zone. The project is in the second phase and is to document fishing activities in the lagoon, research the distribution and migration of the important species, and examine the social, economic and ecological aspects of aquaculture and agriculture, in several communities which depend on the lagoon for their livelihood. This is another project that has taken the right steps to use interdisciplinary participatory research techniques to gain a better understanding of the issues faced by the local communities. In the first phase the researchers were somewhat pre-occupied with documentation and diagnostic analysis of the conditions of the resource and the community. However this provided the base for interventions that will ultimately improve the productivity and sustainability of the resources and these activities have only started in the second phase.

Given the inexperience in using CBNRM type of techniques by the Vietnamese participants considerable efforts were made by Veronika Brzeski and Dr. Gary Newkirk to provide training sessions in interdisciplinary participatory evaluations and action research. The connection between CoRR and the project seems fruitful. A significant amount of reports and publications have been produced that describe a wide range of subjects (agriculture, aquaculture, gender, household economics, and the pole of

macrophytes, fish distribution, behaviour, and harvesting). and the newsletter (Out of the Shell) has been another good tool to engage participants in a dialogue on the advantages and difficulties in getting everybody to pull together and work on common issues. "Learning by doing" seems to be the theme of the project and a wide range of activities are underway in three villages within the lagoon. What is also positive is that efforts are being made to include the agricultural system into the primarily fisheries based project. Agriculture plays an integral and critical part in the management of the aquatic resources and the interdependence of fisheries and land based biomass production is obvious. It was pointed out that because of the complexity and newness of the participatory approach the research is primarily focussed on a small-scale component and then expansion will follow as knowledge increases and confidence is built. At least in the first phase it appears that the team experimented with many of the techniques and made frequent adjustments to the methodologies used. The project appears to be successful in creating awareness of the issues, building research capacity, and reducing the effect of undesirable management (electric fishing, over harvesting). They have persuaded the local government that the community-based approach is acceptable and effective in reducing the conflicts and the over use of the lagoon. What is not so clear is how the integration of all the activities is going to take place and how the up-scaling from two villages to the entire lagoon management is going to take shape. Without trying to get a buy-in from all communities in the coastal it in not possible to manage the aquatic and agricultural resources in a sustainable manner.

4.9. CBNRM in Mountainous areas of Guizou Province (China)

This project addresses resource problems faced by minority groups in one of the poor mountain areas in China. The higher population growth rate within the minority group and the marginal resource base have resulted in a poor nutritional status within such communities and the project seeks to improve the nutritional base by open market opportunities and by improving productivity in these communities. In order to do this effectively the socio-economic and cultural situation needs to be understood and the impact of past and current policy towards resource management and interventions need to be evaluated.

Based on research in three communities it was documented that the resource base was significant but that the quality is poor as a result of significant degradation. Some of the reasons for the poor state of resources are: past policies on use of forests and common properties, lack of education, and a social system that puts too much emphasis on expenditures for ceremonies, festivals, marriages, and funerals. Health and socio-economic conditions within households were documented, and interventions were made to improve the household income, food security, health and nutrition. Changes in the management of grazing, drinking water, roads, and how to better protect crops, and how to improve productivity on the arable land were the main intervention initiatives. Based on the recently held workshop it appears that the improvement in safe drinking water access has had a significant positive impact on health. This has been a long standing problem and could only be resolved because of the multi-stakeholder process which improved communication, gave the community a better understanding of the importance of protecting water supplies, and lead to

community based action to improve sanitation, protect drinking water sources, and make it more accessible.

This project has had significant impacts within a relatively short period but it should be noted that a significant part of the activities has been in the development area (infrastructure improvement e.g. water supply, roads, and health facilities). While this is essential, more emphasis needs to be given to in depth research on soil fertility, productivity, irrigation and rehabilitation. Also, more is needed on the social traditions and traditional rules because they seem to have a large impact on the livelihood. The documentation of the social traditions is an essential first step but in order to change some of the "folk-agreements and traditions" that impact sustainability, more emphasis need to be given to improving the resource base, the household economics, and the nutritional health. This requires substantial public education, and requires research that provides convincing results. This will take considerable time to accomplish. Also, it was reported that the resources are generally in poor shape, but little emphasis or evidence was provided on rehabilitation. Instead the emphasis is primarily placed on producing marketable crops and fruits, which will improve the economic well being, but will it is unclear whether this will improve the environment and the long term sustainability of the resources. This is an issue that also needs to be addressed in the project.

5. Summary and Recommendations

Through its emphasis on interdisciplinary and grassroots participatory research in the area of natural resource management, CBNRM offers a timely and promising alternative to traditional top-down approach research carried out in Asia, typically in the most productive regions. It is a flexible approach particularly well suited to communities living in stressed environments where agriculture and basic livelihood activities must be looked at within the context of broader natural resource systems. However, while the CBNRM approach has many advantages over the more traditional research techniques, there are also many constraints and risks. A summary of the advantages, disadvantages and risks are provided in Table 1.

Table 1. Advantages, disadvantages and risks in using the CBNRM approach

Advantages of using the CBNRM approach	Disadvantages of using the CBNRM approach	Risks associated with using CBNRM
Addresses the immediate concern and issues of the community	Methodologies are more complex and require new skills that are not traditionally available at the educational institutions	The success is highly dependant on the individuals that make up the team (needs good leadership, and compatible personalities)

Provides a better forum for communication between researchers, community participants and the general public	Working in an inter-disciplinary manner is much more difficult and demanding. It requires a combination of human and subject matter skills and knowledge that is not readily available	The focus is often on the immediate concerns and conflicts of the community (short-term) and this might be at the expense of more long-term concerns (e.g climate change, soil fertility decline, degradation)
The focus is on the poorer fraction of the society and allows to place a greater emphasis on gender and ethnicity	To achieve the right team configuration and to match them with the right personalities is probably the biggest challenge	External factors that are currently not considered to be of importance might be ignored. Anticipation of future problems requires early recognition of issues well ahead of those anticipated by the community
Interventions have a more immediate effect and dissemination of successful results can be facilitated and applied more rapidly	CBNRM is much more time consuming which requires that project funding should be assured for longer time periods than the traditional 3 –5 years	The CBNRM approach is dependant on the willingness of the political system to give community groups more power to manage their local resources
Issues are addressed in a more interdisciplinary manner and this should lead to a better understanding of the environmental system and result in more holistic and permanent solutions	There is a danger that too many issues have to be addressed and this leads to increased complexity and problems of integration	Finding the right balance between diagnostic and intervention research, and between social and biophysical science is difficult
Involvement of stakeholders that play as active part in the research provides a reality check on the relevance of the research	The focus tends to be around communities at the expense of integration within larger more natural units such as watersheds, coastal of ecological zones	There are a number of pertinent development issues that cannot effectively be addressed with the CBNRM approach alone (e.g. climate change, international hydro-irrigation schemes, air and water pollution, epidemics)
CBNRM can facilitate conflict resolution since stakeholders can be incorporated into the research from the start	Up-scaling cannot easily be accomplished if it is not incorporated into the research activities from the beginning. (A common problem in most research).	There is the danger that too much effort is spent on participatory research at the expense of basic research that is also needed.
Leads to a more effective public education and forces researchers to better communicate with the public in explaining why the research is important and what the results	Much effort has to be spent on training and education because the necessary skills are not readily available within the academic institutions. This will delay diagnostic and	There is a need to develop quantitative participatory methods because there is an over-emphasis on rapid surveys and assessment procedures, that are not

mean	intervention research (but will have more long term benefits).	necessarily representative of the communities
The act of supporting credible research helps build intellectual and scientific legitimacy for political reform. CBNRM has stimulated internal discussions which leads to a more open policies	Some communities are amorphous and not well suited for the CBNRM approach	
The CBNRM approach is flexible and can readily be adjusted to a wide range of conditions		

The development of CBNRM in Asia presents some additional challenges. Introducing novel concepts such as interdisciplinarity, systems analysis, multi-stakeholder or community involvement is very new and there is considerable skepticism in traditional scientific circles that this approach will be more successful in solving the complex problems of natural resource management. These difficulties can be alleviated by making sure that CBNRM is well adjusted to local, regional and national circumstances and is introduced in a more evolutionary manner. Adjustments should include a flexible understanding of community boundaries, to include ecosystem concepts where settlements, stakeholders and intervening institutions are part of the system and the solutions. Caution must also be taken to strike an adequate balance between short-term and long-term issues, and participatory research and basic diagnostic analysis. Caution should also be taken not to promote CBNRM as the one and only approach to resolve the complex problems of natural resource management. Overly ambitious goals undermine all considerations of realism and feasibility.

The reviewers consider that the PI is showing real progress in the attainment of its program goals. Experience in interdisciplinarity and expertise in some areas required to carry out interdisciplinary research (ranging from participatory research techniques to institutional analysis and conflict management) are often lacking, but this is a normal cost of adopting an innovative approach that breaks new ground in the field of research for development. On the whole the reviewers feel nonetheless that a more realistic assessment of what goals projects can effectively attain within a few years should be encouraged.

The **main recommendations** are that the program and the projects need to find the proper balance between:

• Short-term and long-term goals identified at the "community" and "watershed" level;

• Short-term and long-term goals identified at the research team level (e.g., team selection, training and community involvement in the short term versus CBNRM policy uptake in the long term); we add that there is a need for training and education in many aspects of CBNRM and IDRC should perhaps consider producing distributed learning modules (hypermedia-CD-ROM, Internet sites) on many of the key aspects of CBNRM, survey methodologies and integrated analysis techniques;

• Enabling conditions already in place (objectives to be scaled down if too few in place) and objectives not yet achieved;

• Basic research and participatory applied research;

• Social and natural science components (common approaches and the need for more quantitative and verifiable evaluation techniques);

• Standard CBNRM concepts and prevailing cultural practices (CBNRM-friendly);

• Diagnostic and intervention activities;

• Particular case studies and extrapolations to regional and national levels.

In our view projects would have everything to gain from frank assessments of real tensions that exist between these various ingredients of a fully integrated approach to CBNRM. Instead of espousing holistic principles uncritically, projects should be invited to commit themselves to a realistic evaluation of what kind of 'holistic work" can be done under existing conditions. Using measurable indicators to assess successful accomplishments at both the community and research team levels is critical for the success of the program. Since the program is using a new approach and unconventional methods to address the very complex problems of natural resource management it is imperative that each team is especially rigorous in how the document the research and how they arrive at their research results. This requires that an extra effort should be made to assure that the methods used are transparent and well documented and that the results are verifiable independently.

The CBNRM program has the potential to lead development research into a new and hopefully more effective direction, but in order to be accepted more widely a special effort has to be made to find the proper balance between the above mentioned constraints and to be especially careful in conducting and documenting the research in a rigorous and quantitative manner.

References and Consultations:

Views expressed by the two reviewers are largely based on their reading of IDRC's general policy documents, the CBNRM prospectus and annual reports. This includes IDRC's evaluations of CBNRM, Grant Proposals and publications from the 10 projects selected by IDRC for the review.

The program was discussed with PI members and team leader and other IDRC staff (e.g. Steven Tyler, John Graham, Daniel Buckles, Ronnie Vernooy)